

# Paediatric pain research

with Dr Joe Kossowsky

## Talking points

### Knowledge & Comprehension

1. What is chronic pain?
2. Approximately, what percentage of teenagers suffer from chronic pain?
3. How much more likely is it that someone will develop cannabis use disorder if they start using cannabis as a teenager, compared to those who start in adulthood? Why do you think this is?
4. What are wearable devices, and how is Joe using them in his research?

### Analysis

5. What are the benefits of Joe and his team using smartphone data instead of just bringing teenagers into clinics?
6. What reasons do the teenagers in Joe's study give for using cannabis? What are the realities of cannabis use compared to these expectations?
7. What is the link between sleep, stress, functioning and pain?

### Evaluation

8. Joe says that his team aim "to develop prevention strategies grounded in understanding and science rather than judgement." How do you think the stigma surrounding drug use affects the way conditions like cannabis use disorder are treated? What do you think should be done about this?

### Creativity

9. Discuss your own idea for a research study involving a wearable device. As well as Joe's article, the following articles will help you come up with ideas. Read about the biomedical engineer who uses smart contact lenses to monitor glaucoma ([futurumcareers.com how-can-smart-contact-lenses-monitor-and-treat-eye-conditions](https://www.futurumcareers.com/how-can-smart-contact-lenses-monitor-and-treat-eye-conditions)), the neuroscientist who helps people with Parkinson's disease ([futurumcareers.com/how-wearable-tech-can-combat-parkinsons-disease](https://www.futurumcareers.com/how-wearable-tech-can-combat-parkinsons-disease)), and the engineer making devices that can continually monitor molecules in our bodies ([futurumcareers.com how-can-wearable-sensors-help-monitor-health-and-tailor-drug-treatments](https://www.futurumcareers.com/how-can-wearable-sensors-help-monitor-health-and-tailor-drug-treatments)). What other health conditions can you imagine a wearable device might help? What would your device record?

## Activity

Joe's research highlights the importance of sleep for teenagers dealing with chronic health conditions, and the impact that lack of sleep has on schooling, pain sensitivity, emotional regulation and stress.

Keep a sleep journal for a week. You can find templates for these online ([therapistaid.com/therapy-worksheet/sleep-diary](https://therapistaid.com/therapy-worksheet/sleep-diary)) or make one yourself.

Add to your journal each evening and morning. In the evenings, make a note of any caffeine or medication you took that day, if you felt drowsy throughout the day or took any naps, any exercise you did, what your general mood was, and what you did in the hour before going to bed. In the mornings, make a note of what time you went to bed, how long it took you to fall asleep, when you woke up, and the quality of your sleep.

After the first three days, see if you can spot any patterns. What are the times when you are able to sleep better? Is your sleep affected by something you did or did not do the day before? How is your mood affected by your previous night's sleep?

On the fourth day, research a technique that is supposed to be helpful and add this into your routine for the rest of the week. For example, you might try limiting time on a screen before you go to bed, trying mindfulness techniques such as yoga, or establishing a regular bedtime.

Can you notice any changes in the second half of your week compared to the first? What have you learnt about your sleep patterns? What surprised you most about your sleep habits? Going forward, is there anything about your daily routine that you will now change to help you get a good night's sleep?

## More resources

Joe recommends the two-week and four-week Harvard Medical School Medical Research Course ([pc.hms.harvard.edu/medical-research](https://pc.hms.harvard.edu/medical-research)), where participants learn from experts about career pathways and medical breakthroughs, and work alongside others on a final project. The application process is straightforward, and there are scholarships available.